

NANO-SIZE IMPRINTING STAMP USING SPACER TECHNIQUE

ABSTRACT

A wide-area nano-size imprinting stamp is disclosed. The wide-area nano-size imprinting stamp includes a substrate having a base surface upon which is formed a plurality of micro-features. Each micro-feature includes a plurality of spacers disposed on opposed side surfaces thereof. The spacers extend laterally outward of the opposed side surfaces and the micro-features and the spacers extend outward of the base surface. The micro-features and the spacers are selectively etched to differing heights to define an imprint stamp having an imprint profile. The imprint stamps can be formed on substantially all of a useable area of the substrate and can have complex shapes that vary among the imprint stamps. The imprint stamps can be used as a template for transferring the imprint profile to a mask layer in which the imprint profile will be replicated.

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